AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for [[the]] heat treating ~~treatment of in particular~~ sulfidic ores, ~~in which solids are treated~~ comprising treating solids at a temperature of 450 to approximately 1500°C in a fluidized bed reactor [[(1)]], ~~characterized in that~~ introducing from below a first gas or gas mixture ~~is introduced from below~~ through a ~~preferably central~~ gas supply tube [[(3)]] into a mixing chamber [[(7)]] of the reactor [[(1)]], the gas supply tube [[(3)]] being at least partly surrounded by a stationary annular fluidized bed ~~(35)~~ which is fluidized by supplying fluidizing gas, and [[that]] adjusting [[the]] gas velocities of the first gas or gas mixture ~~as well as of~~ and the fluidizing gas for the annular fluidized bed ~~(35) are adjusted such that the~~ wherein the gas velocities have a particle Froude number[[s]] in the gas supply tube ~~(3) are~~ between 1 and 100, in the annular fluidized bed [[(35)]] between 0.02 and 2, and in the mixing chamber [[(7)]] between 0.3 and 30.

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~ wherein the fluidized bed reactor [[(1)]] or first reactor is provided downstream with a second reactor [[(9)]], into which a gas mixture laden with solids is introduced from the first reactor [[(1)]] from below through a ~~preferably central~~ gas supply tube [[(10)]] into a mixing chamber [[(19)]], the gas supply tube [[(10)]] being surrounded at least partly by a stationary annular fluidized bed [[(36)]] which is fluidized by supplying fluidizing gas.

3. (Currently Amended) The method as claimed in claim 1 [[or 2]], ~~characterized in that~~ wherein the particle Froude number in the gas supply tube [[(3, 10)]] is between 1.15 and 20~~, in particular between 3.95 and 11.6~~.

4. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein the particle Froude number in the annular fluidized bed [[(35, 36)]] is between 0.11 and 1.15~~, in particular between 0.11 and 0.52~~.

5. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein the particle Froude number in the mixing chamber [[(7, 19)]] is between 0.37 and 3.7~~, in particular between 0.53 and 1.32~~.

6. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, adjusting the ~~bed height of~~ solids in each reactor to have a bed height ~~(1, 9) is adjusted~~ such that the annular fluidized bed [[(35, 36)]] extends beyond the upper orifice end of the gas supply tube [[(3, 10)]] and that solids are constantly introduced into the first gas or gas mixture and entrained by the gas stream to the mixing chamber [[(7, 19)]] located above the orifice region of the gas supply tube [[(3, 10)]].

7. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that a~~ claim 1, wherein the sulfidic ore~~, which contains~~ comprises gold, zinc, silver, copper, nickel and/or iron~~, is used~~ as [[the]] starting material.

8. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein at least one reactor [[(1, 9)]] is supplied with oxygen-containing gas~~, for example air with an oxygen content of approximately 20 vol %~~ through the gas supply tube [[(3, 10)]] and/or into the annular fluidized bed [[(35, 36)]].

9. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein heat is supplied to or extracted from at least one reactor [[(1, 9)]] in the annular fluidized bed [[(35, 36)]] and/or in the mixing chamber [[(7, 19)]].

10. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein provided downstream of at least one reactor [[(1, 9)]] is a cooling device [[(20, 21)]], in which a solids-laden gas mixture from the reactor [[(1, 9)]] is cooled to a temperature of below 400°C~~, in particular to approximately 380°C~~.

11. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein provided downstream of at least one reactor [[(1, 9)]] is a separator~~, for example a cyclone (33)~~, from which solids separated from exhaust

gases are supplied to the first and/or second reactor [[(1, 9)]]or to a further cooling device [[(26)]].

12. (Currently Amended) The method as claimed in claim 11, ~~characterized in that~~ wherein at least part of the exhaust gases separated from the solids in the separator [[(23)]] is supplied to the first and/or the second reactor [[(1, 9)]] as fluidizing gas, in particular after treatment in a downstream gas cleaning stage~~, such as a hot-gas electrostatic precipitator (31) and/or a wet-gas treatment (32)~~.

13. (Currently Amended) The method as claimed in claim 11 ~~or 12~~, ~~characterized in that~~ wherein at least part of the exhaust gases separated from the solids in the separator [[(23)]] is supplied to a plant [[(33)]] for producing sulfuric acid.

14. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 11, wherein the solids comprising coarse-grained solids and/or roasting residue are drawn off~~, in particular~~ discontinuously, from the annular fluidized bed [[(35, 36)]]of the first and/or second reactor [[(1, 9)]]and passed on to a further cooling device [[(26)]].

15. (Currently Amended) A plant for [[the]] heat treating ~~treatment of in particular~~ sulfidic ores, ~~in particular for performing a~~ by the method as claimed in ~~any of claims 1 to 14~~, claim 1, comprising a reactor [[(1)]]constituting a fluidized bed reactor, ~~characterized in that~~ wherein the reactor [[(1)]] has a gas supply system which is formed such that gas flowing through the gas supply system entrains solids from a stationary annular fluidized bed [[(35)]], which at least partly surrounds the gas supply system, into the mixing chamber [[(7)]].

16. (Currently Amended) The plant as claimed in claim 15, ~~characterized in that~~ wherein the gas supply system has at least one gas supply tube [[(3)]]extending upwards substantially vertically from the lower region of the reactor [[(1)]] into a mixing chamber [[(7)]] of the reactor [[(1)]], the gas supply tube [[(3)]]being at least partly surrounded by an annular chamber in which the stationary annular fluidized bed [[(35)]]is formed.

17. (Currently Amended) The plant as claimed in claim 16, ~~characterized in that~~ wherein the reactor [[(1)]]is provided downstream with a second reactor [[(9)]], which has a gas supply tube [[(10)]], which is connected to a discharge conduit [[(8)]]for solids-laden gas mixtures provided at the upper end of the first reactor [[(1)]]and is formed such that gas flowing through the gas supply tube [[(10)]]entrains solids from a stationary annular fluidized bed [[(36)]], which at least partly surrounds the gas supply tube [[(10)]], into the mixing chamber [[(19)]].

18. (Currently Amended) The plant as claimed in claim 16 ~~or 17, characterized in that~~ wherein the gas supply tube [[(3, 10)]]is arranged approximately centrally with reference to the cross-sectional area of the reactor [[(1)]].

19. (Currently Amended) The plant as claimed in claim 18, ~~characterized in that~~ wherein a solids separator, ~~in particular a cyclone (23),~~ is provided downstream of the second reactor [[(9)]], for the separation of solids, and that the solids separator has a solids conduit [[(24)]] leading to the annular fluidized bed [[(35, 36)]] of the first and/or second reactor [[(1, 9)]].

20. (Currently Amended) The plant as claimed in claim 18 ~~or 19, characterized in that~~ wherein a cooling device~~, in particular a waste-heat boiler (21) provided with banks of cooling tubes (20),~~ is provided downstream of the second reactor [[(9)]].

21. (Currently Amended) The plant as claimed in ~~any of claims 18 to 20, characterized in that~~ claim 18, wherein temperature-control elements ~~(15, 16), in particular a natural circulation boiler with cooling elements and membrane walls (17, 18),~~ are provided in the first and/or second reactor [[(1, 9)]].

22. (Currently Amended) The plant as claimed in ~~any of claims 18 to 21, characterized in that~~ claim 18, wherein a gas distributor [[(5, 12)]]which divides the annular chamber into an upper fluidized bed region and a lower gas distributor chamber [[(4, 11)]]is provided in the first and/or second reactor ~~(1, 9)~~, and that the gas distributor chamber [[(4, 11)]] is connected to a supply conduit [[(6, 13)]]for fluidizing gas.

23. The plant as claimed in ~~any of claims 19 to 22, characterized in that~~ claim 19, wherein the first and/or second reactor [[(1, 9)]]has a supply conduit which leads to the annular chamber and is connected to an exhaust-gas conduit of the separator [[(23)]] provided downstream of the second reactor [[(9)]].

24. (Currently Amended) The plant as claimed in ~~any of claims 19 to 23, characterized in that~~ claim 19, wherein a dedusting device [[(31, 32)]] and/or a plant [[(33)]]for producing sulfuric acid is provided downstream of the separator [[(23)]].

25. (new) The method as claimed in claim 1, wherein the gas supply tube is arranged approximately central.

26. (new) The method as claimed in claim 3, wherein the particle Froude number in the gas supply tube is between 3.95 and 11.6.

27. (new) The method as claimed in claim 4, wherein the particle Froude number in the annular fluidized bed is between 0.11 and 0.52.

28. (new) The method as claimed in claim 5, wherein the particle Froude number is between 0.53 and 1.32.

29. (new) The method as claimed in claim 8, wherein the oxygen-containing gas has an oxygen content of approximately 20 vol-%.

30. (new) The method as claimed in claim 10, wherein the solids-laden gas mixture is cooled to a temperature of approximately 380°C.

31. (new) The method as claimed in claim 11, wherein the separator is a cyclone.

32. (new) The method as claimed in claim 12, wherein gas cleaning stage is a hot-gas electrostatic precipitator and/or a wet-gas treatment.

33. (new) The plant as claimed in claim 19, wherein the solids separator is a cyclone.

34. (new) The plant as claimed in claim 20, wherein the cooling device is a waste-heat boiler with banks of cooling tubes.

35. (new) The plant as claimed in claim 21, wherein the temperature-control elements is a natural circulation boiler with cooling elements and membrane walls.